

Southwire[®] MACHINE FLEX™ CU 600/1000V PVC-Nylon Insulation TPE Gray Jacket. THHN

Type TC-ER Machine Tray Control Cable 600/1000 Volt Copper Conductors, Polyvinyl Chloride (PVC) with nylon layer Insulation Thermoplastic Elastomer Jacket, 90°C Dry 75°C Wet -40°C Cold Impact Identification Method 4



Image not to scale. See Table 1 for dimensions.

CONSTRUCTION:

- Conductor:** Class K, Flexible stranded bare annealed copper per ASTM B3, B172, and B174
- Insulation:** Polyvinyl Chloride (PVC) with nylon layer THHN
- Ground:** One Green Ground with Yellow Stripe THHN
- Jacket:** Sunlight Resistant Gray Thermoplastic Elastomer TPE: Other jacket colors available upon request

APPLICATIONS AND FEATURES:

Southwire's MachineFLEX™ control tray cables 600/1000 Volt conform to NFPA 79 and are suited for use in wet and dry areas, conduits, ducts, troughs, trays, direct burial and where superior electrical properties are desired. These cables are capable of operating continuously at the conductor temperature not in excess of 75°C in wet locations and 90°C in dry locations, 130°C for emergency overload, and 150°C for short circuit conditions. For uses in Class I, II, Division 2 hazardous locations per NEC® Article 501 and 502. Constructions with 3 or more conductors are listed for exposed runs (TC-ER) per NEC® 336.10. Southwire's machine tray cable is ideal for use in CNC machines, grinding, cutting, metal forming, buffing, bottling equipment, conveyors, processing & packaging equipment, assembly lines, control panels, food and beverage, oil sands, plant expansion, wind energy and data centers. Multiple approvals for multiple applications. Cable is rated for -40°C cold impact. Two conductor cables contain no green/yellow ground.

SPECIFICATIONS:

- ASTM B172 Standard Specification for Rope-Lay-Stranded Copper Conductors Having Bunch-Stranded Copper Conductors
- ASTM B174 Standard Specification for Bunch-Stranded Copper
- UL 66 Fixture Wire Type TFFN (for sizes 18 and 16 AWG)
- UL 83 Thermoplastic Insulated Wire and Cables (sizes 14 AWG to 1000 kcmil)
- UL 758 AWM Style 2587
- UL 1063 Machine Tool Wiring (MTW)
- UL 1277 TC-ER
- UL 1690 Data Processing Cable (DP-1)
- UL 2277 Type WTTC
- UL 13 Type PLTC-ER sizes 18-12AWG
- UL 2250 Type ITC-ER on sizes 18-12 AWG
- CSA C22.2 No. 210 Appliance wiring material products I/II A/B (Sizes 16 - 8AWG)
- CSA C22.2 No.230 Tray Cables - Rated TC
- CSA C22.2 No. 239 Control and instrumentation cables



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- ICEA S-95-658 (NEMA WC70) Power Cables Rated 2000 Volts or Less for the Distribution of Electrical Energy
- IEEE 1202 FT4 Flame Test (70,000) BTU/hr Vertical Tray Test
- **CE/RoHS-2 – The CE Marking has been applied solely to express the conformance to the material restrictions identified in the RoHS-2 (2011/65/EU) Directive**
- NFPA 79 Electrical Standard for Industrial Machinery

SAMPLE PRINT LEGEND:

Print Legend 1:

Southwire XXAWG (XXmm²) XX/C PVC/Nylon Type TC-ER EXXXXX (UL) 600V 90°C Dry 75C Wet Sun Res Oil Res I/II DIR BUR -40°C OR MTW Flexing OR DP-1 OR WTTC 1000V OR AWM 2587 -- LLXXXXXX CSA AWM I/II A/B 105°C 1000V -40°C FT4 -- CSA FT4 CE RoHS -2 Made in USA

Print Legend 2:

SOUTHWIRE{R} XX AWG (X.XXmm²) X/C PVC/NYLON TYPE TC-ER E75755 MASTER-DESIGN (UL) 600V 90{D}C DRY 75{D}C WET SUN RES OIL RES I/II DIR BUR -40{D}C OR MTW FLEXING OR DP-1 OR WTTC 1000V OR PLTC-ER OR ITC-ER OR AWM 2587 -- LL90458 CSA CIC/TC FT4 OR AWM I/II A/B 105{D}C 1000V -40{D}C FT4 -- NOM-ANCE 90{D}C PVC/NYLON PVC-TPE THHN/THWN FT4 600V -- {CE} RoHS-2 MADE IN USA



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Table 1 – Physical and Electrical Data

Stock Number	Cond. Size	Cond. Number	Cond. Strands	Diameter Over Cond.	Insul. Thickness	Jacket Thickness	Approx. OD	Copper Weight	Approx. Weight	DC Resistance @ 25°C	AC Resistance @ 75°C	Min Bending Radius	Allowable Ampacity At 60°C *	Allowable Ampacity 75°C *	Allowable Ampacity 90°C *
	AWG	No.	strands	inch	mil	mil	inch	lb /1000ft	lb /1000ft	Ω /1000ft	Ω /1000ft	inch	Amp	Amp	Amp
18 AWG															
677071	18	2	16	0.044	20	45	0.266	10	35	7.148	8.613	1.0	-	-	14
5815110	18	3	16	0.044	20	45	0.281	15	42	7.148	8.613	1.1	-	-	14
5826420	18	4	16	0.044	20	45	0.306	20	54	7.148	8.613	1.2	-	-	11
5826440	18	5	16	0.044	20	45	0.332	25	63	7.148	8.613	1.3	-	-	11
5815130	18	7	16	0.044	20	45	0.358	35	79	7.148	8.613	1.4	-	-	9
5826450	18	9	16	0.044	20	45	0.411	45	101	7.148	8.613	1.6	-	-	9
5826460	18	12	16	0.044	20	45	0.456	60	128	7.148	8.613	1.8	-	-	7
5826470	18	18	16	0.044	20	45	0.554	90	225	7.148	8.613	2.2	-	-	7
6462620	18	19	16	0.044	20	45	0.560	95	200	7.148	8.613	2.2	-	-	7
5815140	18	25	16	0.044	20	60	0.635	125	253	7.148	8.613	2.5	-	-	6
16 AWG															
6770720	16	2	26	0.059	20	50	0.294	16	45	4.487	5.406	1.1	-	-	18
5815150	16	3	26	0.059	20	50	0.311	24	58	4.487	5.406	1.2	-	-	18
5826480	16	4	26	0.059	20	50	0.339	32	71	4.487	5.406	1.3	-	-	14
5826490	16	5	26	0.059	20	50	0.370	40	86	4.487	5.406	1.4	-	-	14
5815160	16	7	26	0.059	20	50	0.400	56	107	4.487	5.406	1.6	-	-	12
TBA	16	8	26	0.059	20	50	0.429	72	126	4.487	5.406	1.7	-	-	12
5826510	16	9	26	0.059	20	50	0.462	72	137	4.487	5.406	1.8	-	-	12
5826520	16	12	26	0.059	20	50	0.509	97	174	4.487	5.406	2.0	-	-	9
5826530	16	18	26	0.059	20	65	0.623	145	262	4.487	5.406	2.4	-	-	9
6462630	16	19	26	0.059	20	65	0.630	154	272	4.487	5.406	2.5	-	-	9
5815170	16	25	26	0.059	20	65	0.717	202	345	4.487	5.406	2.8	-	-	8
14 AWG															
677073	14	2	41	0.073	20	50	0.324	25	58	2.814	3.391	1.2	15	20	25
5815190	14	3	41	0.073	20	50	0.342	38	77	2.814	3.391	1.3	15	20	25
5826540	14	4	41	0.073	20	50	0.375	51	96	2.814	3.391	1.5	12	16	20
5826550	14	5	41	0.073	20	50	0.411	63	114	2.814	3.391	1.6	12	16	20
5815210	14	7	41	0.073	20	50	0.445	89	149	2.814	3.391	1.7	10	14	17
6737950	14	8	41	0.073	20	50	0.495	102	175	2.814	3.391	1.9	10	14	17
5826560	14	9	41	0.073	20	50	0.516	115	188	2.814	3.391	2.0	10	14	17
5826570	14	12	41	0.073	20	65	0.608	153	257	2.814	3.391	2.4	7	10	12
5826580	14	18	41	0.073	20	65	0.697	230	363	2.814	3.391	2.7	7	10	12
5815220	14	25	41	0.073	20	65	0.806	318	486	2.814	3.391	3.2	6	9	11
12 AWG															
677074	12	2	65	0.094	20	50	0.362	40	80	1.774	2.137	1.4	20	25	30
677188	12	3	65	0.094	20	50	0.389	60	108	1.774	2.137	1.5	20	25	30
5826590	12	4	65	0.094	20	50	0.420	81	136	1.774	2.137	1.6	16	20	24
5826600	12	5	65	0.094	20	50	0.502	101	170	1.774	2.137	2.0	16	20	24
582661	12	7	65	0.094	20	50	0.502	141	219	1.774	2.137	2.0	14	17	21



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	AWG	No.	strands	inch	mil	mil	inch	lb /1000ft	lb /1000ft	Ω /1000ft	Ω /1000ft	inch	Amp	Amp	Amp
10 AWG															
677075	10	2	105	0.117	25	50	0.430	64	119	1.111	1.339	1.7	30	35	40
677189	10	3	105	0.117	25	50	0.462	97	159	1.111	1.339	1.8	30	35	40
581523◇	10	4	105	0.117	25	50	0.502	129	201	1.111	1.339	2.0	24	28	32
582662	10	5	105	0.117	25	50	0.579	161	291	1.111	1.339	2.3	24	28	32
582663	10	7	105	0.117	25	65	0.628	226	336	1.111	1.339	2.5	21	24	28
677190	8	3	168	0.153	35	65	0.626	157	314	0.715	0.861	2.5	40	50	55
643367	8	4	168	0.153	35	65	0.680	210	361	0.715	0.861	2.7	32	40	44
673797	8	5	168	0.153	35	70	0.766	263	450	0.715	0.861	3.0	32	40	44
677191	6	3	259	0.198	35	70	0.725	268	440	0.450	0.541	2.9	55	65	75
643369◇	6	4	259	0.198	35	70	0.817	358	562	0.450	0.541	3.2	44	52	60
677192	4	3	420	0.235	50	80	0.889	399	649	0.282	0.340	3.5	70	85	95
643371◇	4	4	420	0.235	50	80	0.969	532	829	0.282	0.340	3.8	56	68	76
677193	2	3	651	0.302	50	100	1.070	637	988	0.179	0.216	5.3	95	115	130
643373◇	2	4	651	0.302	50	100	1.196	849	1262	0.179	0.216	5.9	76	92	104

All dimensions are nominal and subject to normal manufacturing tolerances

◇ Cable marked with this symbol is a standard stock item

* Ampacities based upon 2023 NEC Table 310.16 and do not take into account the overcurrent protection limitations in NEC 240.4(D) of 15 Amps for 14 AWG CU, 20 Amps for 12 AWG CU, and 30 Amps for 10 AWG CU (independent of the conductor temperature rating and stranding if size is present in table). Also, see NEC sections 310.15 and 110.14(C) for additional requirements.

* Ampacities have been adjusted for more than Three Current-Carrying Conductors.



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